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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/535,233	03/24/2000	Masaya Kadono	SEL 171	1670

7590 09/21/2004

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EXAMINER	
COLEMAN, WILLIAM D	
ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/535,233	KADONO ET AL.	
	Examiner	Art Unit	
	W. David Coleman	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed August 20, 2004 have been fully considered but they are not persuasive.

Applicants contend for example, independent claim 11 recites forming a gate insulating film in contact with the semiconductor film from the surface of which the contaminating impurity has been removed. Applicants further contend that this feature is not disclosed in any of the cited references.

In response to Applicants contention that the prior art fails to teach forming a gate insulating film, please note that Lin et al., U.S. Patent 6,123,865 herein known as Lin would suggest the obvious. Lin discloses a method for etching films on semiconductor wafers for integrated circuits (column 1, lines 6-10). Lin further states that wet etches are especially suitable for blanket etches of polysilicon, oxide, nitride, and metal. The Examiner notes that Lin does not specifically disclose a gate oxide. Muraoka also discloses a method for etching semiconductor films in a semiconductor device and particularly integrated circuits (column 1 line 24). Muraoka further discloses how an alkali metal, particularly sodium is converted into a movable ion in a silicon oxide film prominently to degrade the properties of, for example, an MOS type semiconductor device. Since Applicants have focused on the MOS device of Muraoka not specifically stating that a MOS device has a gate oxide, the Examiner will provide basic literature as to what is well known in the art. Muller et al., 'Device Electronics for Integrated Circuits', second edition, pp 378-417. Also, Schroder "Semiconductor Material and Device Characterization" second edition pp 351 gives a precise structure of a MOS system.

If Applicants continue to hold the position that the combined references do not disclose any suggestion of a gate oxide, Applicants should provide a sworn affidavit to that effect.

Applicants respectfully disagree as the very thin oxide film has a role of absorbing the metal impurity, but not a role as a gate insulating film.

In response to Applicants contention that the metal impurity is absorbed in the oxide film of the prior art is not necessarily true. Alkali metals have ions that constantly drift about the oxide rendering the insulating properties unpredictable. Applicants have many patents disclosing the problems of alkali metals in insulating films and should review the prior art for further examples (5,530,265, since this reference is already assigned to Applicants assignee, it will not be listed on a PTO form 892).

Applicants contend that the combined references of Lin and Muraoka fail to teach spin-etching is performed before forming the gate insulating film.

In response to Applicants contention that the combined teachings fail to teach spin-etching before forming the gate insulating film, Applicants are directed to Lin. The Lin reference would suggest spin-etching various materials such as polysilicon. It is well known to form a polysilicon film on a substrate prior to oxidation. This is well known as LOCOS or local oxidation of silicon, which results in forming a silicon oxide film.

Applicants contend that gate electrodes are not parts of a MOS system.

In response to this argument the Examiner will object to the oath because such arguments clearly show that Applicants could not make an improvement to semiconductor devices such as a MOS system since Applicants have no understanding of the technology at hand. It is well known that gate electrodes form part of the wiring layer in the MOS system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856. The examiner can normally be reached on 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. David Coleman
Primary Examiner
Art Unit 2823

WDC